

## WHAT IS CLAIMED IS:

1. Seed of celery line designated ADS-5, representative seed of said line having been deposited under ATCC Accession No. PTA-\_\_\_\_\_.
2. A celery plant, or a part thereof, produced by growing the seed of claim 1.
3. A tissue culture of regenerable cells produced from the plant of claim 2.
4. Protoplasts produced from the tissue culture of claim 3.
5. The tissue culture of claim 3, wherein cells of the tissue culture are from a tissue selected from the group consisting of leaf, pollen, embryo, root, root tip, anther, pistil, flower, seed and stem.
6. A celery plant regenerated from the tissue culture of claim 3, said plant having all the morphological and physiological characteristics of line ADS-5, representative seed of said line having been deposited under ATCC Accession No. PTA-\_\_\_\_\_.
7. A method for producing an F1 hybrid celery seed, comprising crossing the plant of claim 2 with a different celery plant and harvesting the resultant F1 hybrid celery seed.
8. A hybrid celery seed produced by the method of claim 7.
9. A hybrid celery plant, or parts thereof, produced by growing said hybrid seed of claim 8.
10. A method for producing a male sterile celery plant comprising transforming the celery plant of claim 2 with a nucleic acid molecule that confers male sterility.
11. A male sterile celery plant produced by the method of claim 10.
12. A method of producing an herbicide resistant celery plant comprising transforming the celery plant of claim 2 with a transgene that confers herbicide resistance.
13. An herbicide resistant celery plant produced by the method of claim 12.
14. The celery plant of claim 13, wherein the transgene confers resistance to an herbicide selected from the group consisting of: imidazolinone, sulfonylurea, glyphosate, glufosinate, L-phosphinothricin, triazine and benzonitrile.

15. A method of producing an insect resistant celery plant comprising transforming the celery plant of claim 2 with a transgene that confers insect resistance.
16. An insect resistant celery plant produced by the method of claim 15.
17. The celery plant of claim 16, wherein the transgene encodes a *Bacillus thuringiensis* endotoxin.
18. A method of producing a disease resistant celery plant comprising transforming the celery plant of claim 2 with a transgene that confers disease resistance.
19. A disease resistant celery plant produced by the method of claim 18.
20. A method of producing a celery plant with modified fatty acid metabolism or modified carbohydrate metabolism comprising transforming the celery plant of claim 2 with a transgene encoding a protein selected from the group consisting of stearyl-ACP desaturase, fructosyltransferase, levansucrase, alpha-amylase, invertase and starch branching enzyme.
21. A celery plant produced by the method of claim 20.
22. A celery plant, or part thereof, having all the physiological and morphological characteristics of the line ADS-5, representative seed of said line having been deposited under ATCC Accession No. PTA-\_\_\_\_\_.
23. A method of introducing a desired trait into celery line ADS-5 comprising:
  - (a) crossing ADS-5 plants grown from ADS-5 seed, representative seed of which has been deposited under ATCC Accession No. PTA-\_\_\_\_\_, with plants of another celery line that comprise a desired trait to produce F1 progeny plants, wherein the desired trait is selected from the group consisting of male sterility, herbicide resistance, insect resistance and disease resistance;
  - (b) selecting F1 progeny plants that have the desired trait to produce selected F1 progeny plants;
  - (c) crossing the selected progeny plants with the ADS-5 plants to produce backcross progeny plants;
  - (d) selecting for backcross progeny plants that have the desired trait and

physiological and morphological characteristics of celery line ADS-5 listed in Table 1 to produce selected backcross progeny plants; and

- (e) repeating steps (c) and (d) three or more times in succession to produce selected fourth or higher backcross progeny plants that comprise the desired trait and all of the physiological and morphological characteristics of celery line ADS-5 listed in Table 1 as determined at the 5% significance level when grown in the same environmental conditions.

24. A plant produced by the method of claim 23, wherein the plant has the desired trait and all of the physiological and morphological characteristics of celery line ADS-5 listed in Table 1 as determined at the 5% significance level when grown in the same environmental conditions.

25. The plant of claim 24 wherein the desired trait is herbicide resistance and the resistance is conferred to an herbicide selected from the group consisting of: imidazolinone, sulfonylurea, glyphosate, glufosinate, L-phosphinothricin, triazine and benzonitrile.

26. The plant of claim 24 wherein the desired trait is insect resistance and the insect resistance is conferred by a transgene encoding a *Bacillus thuringiensis* endotoxin.

27. The plant of claim 24 wherein the desired trait is male sterility and the trait is conferred by a cytoplasmic nucleic acid molecule that confers male sterility.